

Claims

1. A primary composition comprising at least one carotenoid-containing material, enriched in *cis*-isomers of the carotenoid compound.

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2. The primary composition according to claim 1, wherein the carotenoid-containing material is obtained, extracted or purified from a plant or vegetable material, microorganism, yeast or product of animal origin.

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3. The primary composition according to claim 1 or 2, wherein the carotenoid-containing material is in the form of an extract, a concentrate or an oleoresin.

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4. The primary composition according to one of claims 1 to 3, in which the *cis*-isomers of the carotenoid compound are in an amount effective to increase the bioavailability and/or bioefficacy of said carotenoid compound.

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5. The primary composition according to one of claims 1 to 4, wherein the plant or vegetable material is tomatoes, carrots, peaches, apricots, oranges, melons, guavas, papayas, grapefruit, rosehips, soya, green tea, green coffee beans, spices, grapes or cocoa.

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6. The primary composition according to one of claims 1 to 5, wherein the carotenoid compound is lycopene, carotenes, zeaxanthine, astaxanthine, β -cryptoxanthin, capsanthine, canthaxanthine, lutein, phytofluene or phytoene.

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7. The primary composition according to one of claims 1 to 6, in which the *cis:trans* isomers ratio of the carotenoid compound is of at least 20:80.

8. The primary composition according to one of claims 1 to 7, which is in liquid, gel or powder form.

9. An oral composition comprising the primary composition according to one of claims 1 to 8, in a foodstuff, in a food supplement, in a pet food product, in a cosmetic preparation or in a pharmaceutical preparation.
- 5 10. The oral composition according to claim 9, wherein the foodstuff is chosen from the group consisting of a nutritional complete formula, a dairy product, a chilled or shelf stable beverage, a mineral water, a liquid drink, a soup, a dietary supplement, a meal replacement, a nutritional bar, a confectionery product, a milk or a fermented milk product, a yogurt, a milk based powder, an enteral nutrition product, an infant formulae,
10 an infant nutritional product, a cereal product or a fermented cereal based product, an ice-cream, a chocolate, coffee, a culinary product or a pet food product.
11. The oral composition according to claim 9 or 10, wherein the food supplement is provided in the form of capsules, gelatin capsules, soft capsules, tablets, sugar-coated
15 tablets, pills, pastes or pastilles, gums, drinkable solutions or emulsions, syrups or gels.
12. The oral composition according to claim 11, which further comprises at least one of a sweetener, a stabilizer, a flavoring and a colorant.
- 20 13. The oral composition according to claim 9, wherein the cosmetic preparation additionally comprises a compound active with respect to the skin.
14. The oral composition according to one of claims 9 to 13, wherein the content of the primary composition is between about 0.001 and 100%, and preferably between
25 about 10 and 50%.
15. A cosmetic composition comprising the primary composition according to one of claims 1 to 8.
- 30 16. The cosmetic composition according to claim 15, wherein the content of primary composition is between about 10.sup.-10% and 10%.

17. A process for the preparation of a primary composition according to claim 1 to 8, which comprises subjecting the carotenoid-containing material to a treatment under conditions sufficient to increase its content in *cis*-isomers of the carotenoid compound.

5 18. The process according to claim 17, wherein the *cis*-isomer content is an amount effective to increase the bioavailability and bioefficacy of said carotenoid compound.

10 19. The process according to claim 18, wherein the treatment is a thermal or acidic treatment, an electromagnetic irradiation or a radical reaction.

20. The process according to claim 19, wherein the primary composition is further subjected to a treatment to modify its isomer profile.

15 21. The process according to claim 20, in which the treatment is a solubilisation of *cis*-isomers in selected organic solvents followed by phase separation using centrifugation or filtration.

20 22. Use of a primary composition comprising at least one carotenoid-containing material enriched in *cis*-isomers, for the preparation of an oral, cosmetic or pharmaceutical composition for improving skin health.

25 23. The use according to claim 22, for protecting the tissues of the skin against ageing, in the prevention or treatment of sensible, dry or reactive skins, or for improving skin density or firmness, for increasing skin photoprotection.

30 24. Use of a primary composition comprising at least one carotenoid-containing material enriched in *cis*-isomers, for the preparation of an oral, cosmetic or pharmaceutical composition for preventing or treating cardiovascular diseases or cancers.